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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,437	01/07/2002	David A. Ackerman	ACKERMAN 29-14-7-11	4693

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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 08/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/036,437

Applicant(s)

ACKERMAN ET AL.

Examin r

Sung H. Pak

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5, 9, 11-17, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Okuyama et al (US 5,740,193).

Okuyama et al reference discloses an optical device with all the limitations set forth in the claims, including: a substrate ("1" Fig. 1); a first cladding layer over the substrate ("2" Fig. 1); a waveguide layer provided over the substrate and the cladding layer, having a dopant concentration between $1 \times 10^{15} \text{ cm}^{-3}$ to $5 \times 10^{16} \text{ cm}^{-3}$ (column 4 lines 33-41); a second cladding layer ("4" Fig. 1); electrical contacts to first and second cladding layers providing a bias of the p-n junction for the purpose of injecting carriers into the waveguide layer ("11, 12" Fig. 1).

Although the reference does not explicitly mention that the concentration of recombination centers is between $1 \times 10^{15} \text{ cm}^{-3}$ to $5 \times 10^{16} \text{ cm}^{-3}$, the introduction of dopants into the active layer creates recombination centers for light emission. Therefore, the claimed limitations are inherently taught by the reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-4, 6-8, 10, 18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuyama et al (US 5,740,193) in view of Furuyama et al (JP 60-65588).

Okuyama et al reference discloses an optical device with all the limitations set forth in the claims as discussed above except it does not teach the use of InP substrate and InGaAsP waveguide layers as claimed in the instant application. However the use InP substrate and InGaAsP waveguide layer is known in the art as taught by Furuyama et al reference.

Furuyama et al reference teaches the use of a InP substrate and a InGaAsP waveguide layer in forming a DBR laser device (constitution). Such a MSM (metal-semiconductor-metal) DBR laser arrangement is advantageous in producing an efficient laser device capable of outputting a light beam of desired wavelength. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Okuyama et al device to have a InP substrate and InGaAsP waveguide layer forming a DBR laser device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yudasaka et al (US 2003/0080337 A1) reference discloses a semiconductor device having a concentration of recombination centers in the range between $1 \times 10^{13} \text{ cm}^{-3}$ to $1 \times 10^{20} \text{ cm}^{-3}$, Kuo et al (US 2002/0104997 A1) reference discloses a semiconductor light emitting device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (703) 308-4880. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Art Unit: 2874

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Sung H. Pak
Examiner
Art Unit 2874

sp
August 4, 2003



HEMANG SANGHAVI
PRIMARY EXAMINER